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वस्त्रादि — आस्तीनीकरण के लिये  
सूती वेणियाँ — विशिष्टि  
( पहला पुनरीक्षण )

**Textiles — Cotton Braids for  
Sleeving — Specification**  
( *First Revision* )

ICS 59.080.30

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## FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee had been approved by the Textile Division Council.

The braids conforming to this specification are intended to be used in the manufacture of sleeveings used for insulating ends of coils in electrical equipment. This standard was first published in 1970 and has been revised now to align it with latest trade practices. The sampling plan has also been harmonized with other standards on similar products.

The composition of the Committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# Indian Standard

## TEXTILES — COTTON BRAIDS FOR SLEEVEING — SPECIFICATION

( First Revision )

### 1 SCOPE

**1.1** This standard prescribes constructional details and other particulars of six varieties of cotton braid meant for making sleeveings.

**1.2** This standard does not specify the general appearance, feel, etc., of the braid.

### 2 REFERENCES

The standards listed in Annex A contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards.

### 3 GENERAL REQUIREMENTS

**3.1 Yarns** — The cotton yarns used for the braid and the core should be satisfactory in evenness and reasonably free from neps, slubs, knots, kinks and other

spinning defects. The yarns should be free from size and materials. The approximate count of the braid yarn shall be  $30 \text{ tex} \times 2$  (20s/2). The core yarn shall be 2-ply and of suitable count.

**3.2 Braid** — The braid should be smooth and free from knots, kinks or projections, broken or loose yarn ends and other manufacturing imperfections which affect its appearance or serviceability. It shall be free from added matter.

### 4 PHYSICAL REQUIREMENTS

**4.1 Length** — Length of the braid in a ball shall be 50 m or 100 m or as agreed to between the buyer and the seller. It shall not be less than the declared or marked length.

**4.2** The braids conforming to this standard shall also meet the physical requirements given in Table 1.

### 5 CHEMICAL REQUIREMENTS

The braids shall meet the chemical requirements given in Table 2.

**Table 1 Physical Requirements of Cotton Braids**

( Clause 4.2 )

Type	Variety No.	Flat Width, mm	Diameter, mm	No. of Yarns per Strand		No. of Strands		Plaits per 30 cm	Weight per 100 m, g	Breaking Load on Full Width $\times$ 20 cm Test Length, kgf, Min
(1)	(2)	(3)	(4)	Braid	Core	Braid	Core	(9)	(10)	(11)
With Core	1	—	1.5	2	2	12	3	38	95	10
	2	—	2	2	2	12	2	35	110	12
	3	—	3	2	2	16	2	28	160	19
Without Core	4	6	—	2	—	32	—	12	220	29
	5	6.5	—	2	—	40	—	10	270	31
	6	8	—	2	—	48	—	9	330	42
Tolerance		$\pm 0.5$	$\pm 0.5$					$\pm 2$	$\pm 10$	
Method of Test		B-2	B-2	B-3	B-3	B-4	B-5			IS 1969 (Part 1)

**Table 2 Chemical Requirements of Cotton Braids**  
( Clause 5 )

SI No.	Characteristic	Requirement	Method of Test
(1)	(2)	(3)	(4)
i)	pH of aqueous extract	6.0 to 8.5	IS 1390 : 2019/ ISO 3071 : 2005
ii)	Scouring loss, percent,	2.5 Max	IS 1383 : 1977 (Mild method)

## 6 PACKING

The braid shall be wound in the form of balls or as per contract.

## 7 MARKING

**7.1** Each ball of braids shall be legibly marked with the following information:

- Name of the material;
- Width or diameter as the case may be;
- Length of the braid;
- Manufacturer's name, initials, or trade-mark, if any; and
- Month and year of manufacture.

## 7.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

## 8 SAMPLING

**8.1** The lot shall consist of all the braids of same variety and delivered to a buyer against one despatch note.

**8.2** Unless otherwise sampling plan is specified in the contract or order, the sampling plan as given in Table 3 may be used for inspecting and testing of braids against this standard. The number of cheeses or spools to be selected from the lot for assessing general requirements (see 3.1 and 3.2) and testing length, width, diameter, plaits and weight shall be as per col 2 of Table 3. The number of test specimens to be selected for other tests shall be in accordance with col 4 of Table 3. To ensure the randomness of selection, IS 4905 may be followed.

### 8.3 Criteria for Conformity

The lot shall be declared conforming to the requirements of this standard if the total number of defective samples does not exceed the permissible numbers given in col 3 or col 5 of Table 3 as applicable.

**Table 3 Sampling Plan for Cotton Braids**  
( Clauses 8.2 and 8.3 )

Lot Size	Sample Size	Permissible No. of Defectives Samples	Sub-Sample Size (to be drawn from sample)	Permissible No. of Defectives Sub-Samples
(1)	(2)	(3)	(4)	(5)
2 to 25	3	0	3	0
26 to 90	13	1	3	0
91 to 150	20	2	13	1
151 to 280	32	3	13	1
281 to 500	50	5	20	1
501 to 1200	80	7	32	2
1201 and above	125	10	50	3

NOTE — If sample size equals or exceeds lot size, carry out 100 percent inspection.

## ANNEX A

( Clause 2 )

## LIST OF REFERRED INDIAN STANDARDS

<i>IS No</i>	<i>Title</i>	<i>IS No</i>	<i>Title</i>
1383 : 1977	Methods for determination of scouring loss in grey and finished cotton textile materials ( <i>first revision</i> )	1969 (Part 1) : 2018/ ISO 13934-1 : 2013	Textiles — Tensile properties of fabrics: Part 1 Determination of maximum force and elongation at maximum force using the strip method ( <i>fourth revision</i> )
1390 : 2019/ ISO 3071 : 2005	Textiles — Determination of pH of aqueous extract ( <i>second revision</i> )		

## ANNEX B

( Table 1 )

## METHODS OF TEST

**B-1 ATMOSPHERIC CONDITIONS FOR CONDITIONING AND TESTING OF TEST SPECIMENS**

Unless otherwise provided for in an agreement between the buyer and the seller, the test specimens shall be conditioned to moisture equilibrium in a standard atmosphere at  $65 \pm 2$  percent relative humidity and  $27^\circ \pm 2^\circ \text{C}$  temperature. If possible, tests shall be made in this standard conditioning atmosphere otherwise they shall be made as quickly as possible but not later than 15 min after the removal of the test specimen from the standard atmosphere.

**B-2 FLAT WIDTH OR DIAMETER**

**B-2.1 Test Specimen** — Each roll in the sample shall constitute a test specimen.

**B-2.2 Procedure** — Lay the specimen on a table under a tension just sufficient to straighten it without undue stretching. Measure the width (or diameter) to the nearest 0.5 mm. Similarly measure the width, (or diameter) in at least 5 different places and take the average. Repeat the test with the remaining test specimens.

**B-3 NUMBER OF YARNS PER STRAND AND NUMBER OF STRANDS IN THE BRAID AND CORE**

**B-3.1 Test Specimen** — From each ball in the test sample, cut a piece measuring approximately 15 cm. Each such piece shall constitute a test specimen.

**B-3.2 Procedure** — Take a test specimen. From one of its ends remove the interlacings, count the number of strands forming the braid and the core and the number of yarns in each strand. Repeat the test with the remaining test specimens.

**B-4 PLAITS PER 30 CENTIMETRES**

**B-4.1 Test Specimen** — For the purpose of this test, cut a length of braid, measuring approximately 50 cm from each ball in the test sample. Each such piece shall constitute a test specimen.

**B-4.2 Apparatus**

**B-4.2.1 Twist Tester** — The twist tester shall be provided with two clamps, one of which shall be capable of sliding and adjustable at any convenient distance from the other clamp. It shall also be provided with a tensioning device.

**B-4.3 Procedure**

**B-4.3.1** Take a dark coloured thread of approximately the same count as the strands in the braid. Tie one end of the coloured thread to any one of the strands of the test specimen. Hold the other end of the tied strand and pull it out the braid so as to replace the strand by the coloured thread in the body of the braid.

**B-4.3.2** Set the clamp of the twist tester at a distance of 30 cm.

**B-4.3.3** Mount the test specimen prepared as in **B-4.3.1** on the twist tester applying a tension equal to 500 gf.

Count the number of floats of the coloured thread on the surface of the braid in a straight line parallel to the axis of the braid. This shall be the number of plaits per 30 cm.

NOTE — The number of times a strand turns round the braid while interlacing with other strands shall be taken as the number of plaits in the braid. The turns of the strand round the braid shall be determined by counting the floats of the strand on the surface of the braid in a straight line parallel to the axis of the braid.

**B-4.3.4** Repeat the test with the remaining test specimens.

## B-5 WEIGHT PER 100 METRES

**B-5.1 Test Specimen** — For the purpose of this test, cut a piece of braid approximately 4 m in length from each of the balls in the test sample (*see* 5.4). Each such piece shall constitute a test specimen.

## B-5.2 Procedure

**B-5.2.1** Take a test specimen and apply a tension equal to 100gf. After  $60 \pm 5$  s, place two marks on the braid 3 m apart.

NOTE — The tension may be applied in a breaking load testing machine. It may also be applied by fixing one end of the braid to a peg and passing the braid around a pulley and hanging the desired load at the other end.

**B-5.2.2** Release the tension. Cut the test specimen at the marks and determine its weight to the nearest 0.5 g.

**B-5.2.3** Calculate the weight of the braid, per 100 m by the following formula:

$$\text{Weight in grams per 100 m} = \frac{100 \times W}{3}$$

where

W = weight in grams of 3-m length of braid (*see* B-5.2.2).

**B-5.2.4** Repeat the test with the remaining test specimens.

## ANNEX C

( Foreword )

## COMMITTEE COMPOSITION

Technical Textiles for Clothtech Applications including  
Narrow Fabrics and Braids Sectional Committee, TXD 39

<i>Organization</i>	<i>Representative(s)</i>
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